

REMARKS

Claims 1-20 are all the claims pending in the application. Reconsideration and review of the claims on the merits are respectfully requested.

Formal Matter

Applicants appreciate that the Examiner has returned a signed and initialed Information Disclosure Statement, Form PTO/SB/08 A & B (modified), submitted on January 31, 2002.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 3-12 and 14-20 are rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over Sato et al for the reasons of record.

Claims 1-29 are rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over Sato et al in view of Applicants' statement of the prior art for the reasons of record.

The Examiner asserts that since Sato clearly teaches the use of microcapsules (citing to page 3, column 2 at line 10), Applicants' Declaration can be dispositive of the issue of patentability if there is only one variable (i.e., micro-encapsulation versus no micro-encapsulation). Consequently, it is suggested by the Examiner that Applicants submit a new Declaration wherein the only variable is the use of microcapsules. If unexpected results are obtained with the use of microcapsules, the Examiner states that the rejections will have been overcome.

Applicants respond as follows.

Applicants have conducted additional experimentation comparing the closest specific examples disclosed in Sato with representative invention embodiments to demonstrate the

unexpected superiority of the present invention. In particular, as suggested by the Examiner, Applicants conducted experimentation focused on comparing the particular use of microcapsules in the present invention to the lack thereof in Sato's examples. Such experimentation is presented in an executed Rule 132 Declaration submitted herewith.

Mr. Nagase's Declaration notes that Sato et al discloses a heat-sensitive recording material wherein the diazo compound is not encapsulated in microcapsules but is simply dispersed in the material. On the other hand, the instant invention is directed to a heat-sensitive recording material wherein the diazo compound is encapsulated in microcapsules.

Heat-sensitive recording materials of the instant invention were compared with a heat-sensitive material prepared according to Example 1 of Sato. The exemplary compound (A-2) of the instant invention, which is also used in Sato, was used as the diazonium compound for all experiments. Both the exemplary coupler (B-1) of the instant invention and the coupler used in Example 1 of Sato (C-1) are used as couplers. When B-1 is used, density of yellow is measured, and when C-1 is used, density of blue is measured.

As is shown in Tables 1a and 1b of the Rule 132 Declaration, the examples of the instant invention wherein the diazo compounds were encapsulated in microcapsules exhibit, compared with the comparative examples of Sato, a lower color formation in background area (lower fogging in the background area) and a lower density of the color which was formed after photo-fixing, that is, a more excellent photo-fixing property. Thus, the present invention provides unexpectedly superior results.

RESPONSE UNDER 37 C.F.R. § 1.116

U.S. Application No. 09/987,082

Q67078

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

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23373

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Date: December 4, 2003



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Hisato NAGASE, et al.

Attorney Docket No. Q67078

Appln. No.: 09/987,082

Confirmation No.: 6582

Group Art Unit: 1774

Filed: November 13, 2001

Examiner: Bruce H. Hess

For: HEAT-SENSITIVE RECORDING MATERIAL

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

I, Hisato Nagase, hereby declare and state:

THAT I am a citizen of Japan;

THAT I graduated from Graduate School of Kyoto University in March, 1998, and my major was Synthetic and Biological Chemistry;

THAT I joined Fuji Photo Film Co., Ltd., in April, 1998, and since then

I

have been working in the Fujinomiya Research Laboratory of the company and have been engaged in synthesis of materials for full-color heat sensitive recording materials;

THAT I am an inventor of the invention described and claimed in the above-identified application;

THAT I am familiar with the prosecution of the above-identified application; and

THAT the experimentation set forth below was conducted by me or under my direct supervision.

EXPERIMENTATION

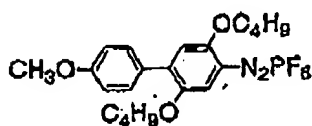
Sato et al. (JP 60-089391) discloses a heat-sensitive recording material wherein the diazo compound is not encapsulated in microcapsules but is simply dispersed in the material. However, the instant invention is directed to a heat-sensitive recording material wherein the diazo compound is encapsulated in microcapsules.

Heat-sensitive recording materials of the instant invention were compared with heat-sensitive materials prepared according to Example 1 of Sato.

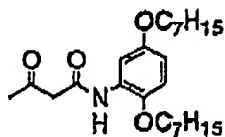
The exemplary compound (A-2) of the instant invention, which is also used in Sato, was used as diazonium compound for all experiments. Both the exemplary coupler (B-1) of the instant invention and the coupler used in Example 1 of Sato (C-1) are used as coupler. When B-1 is used, density of yellow is measured. And when C-1 is used, density of blue is measured.

Table 1a: Preparation of Heat-sensitive Recording Materials

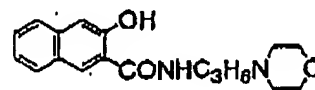
| | Diazonium salt used | Coupler used | Encapsulation of diazonium salt |
|--------------------------------------|---------------------|--------------|---------------------------------|
| Example of the instant invention (1) | A-2 | B-1 | Yes |
| Comparative Example (1) | A-2 | B-1 | No |
| Example of the instant invention (2) | A-2 | C-1 | Yes |
| Comparative Example (2) | A-2 | C-1 | No |



Diazonium salt A-2



Coupler B-1



Coupler C-1

Table 1b: Test Results

| | Color-formation test | | Photo-fixing property test | |
|--------------------------------------|-------------------------|-----------------------|----------------------------|-----------------------|
| | Density of formed color | Density of background | Density of formed color | Density of background |
| Example of the instant invention (1) | 1.52 | 0.08 | 0.15 | 0.08 |
| Comparative Example (1) | 1.02 | 0.20 | 0.54 | 0.20 |
| Example of the instant invention (2) | 1.46 | 0.09 | 0.13 | 0.09 |
| Comparative Example (2) | 1.05 | 0.21 | 0.55 | 0.21 |

The color-formation test and the photo-fixing property test were conducted according with the methods described in EXAMPLES in the specification of the present application.

As shown in the above tables, the examples of the instant invention wherein diazo compound was encapsulated in microcapsules exhibit, compared with comparative examples (Sato) wherein diazo compound was not encapsulated in microcapsules, a lower color formation in background area (lower fogging in the background area) and a lower density of the color which was formed after photo-fixing, that is more excellent photo-fixing property.

The instant invention provides a heat-sensitive recording material which is excellent in photo-fixing property and which has low color formation in background area. It is noted that instant invention provides a heat-sensitive recording material which is excellent in photo-fixing property when a light source emitting a light having a wavelength longer than 400 nm is used.

Thus, I conclude that the present invention provides unexpectedly superior results.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so

DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Appln. No. 09/987,082

made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 11 / 19 / 2003

Hisato Nagase
Hisato Nagase